

CLAIMS

1. An aqueous coating composition comprising:

- a) 1 to 64 wt % of a non-crosslinkable water-dispersible oligomer(s);
- b) 4 to 76 wt % of a dispersed polymer(s);
- c) 0 to 20 wt % of co-solvent;
- d) 20 to 80 wt % of water;

where $a) + b) + c) + d) = 100\%$;

where the weight ratio of a) : b) is in the range of from 8:92 to 80:20; and

wherein said composition when drying to form a coating has the following properties:

- i) an open time of at least 20 minutes;
- ii) a wet edge time of at least 10 minutes;
- iii) a tack-free time of ≤ 24 hours;
- iv) an equilibrium viscosity of $\leq 5,000$ Pa.s, at any solids content when drying in the range of from 20 to 55 % by weight of the composition, using any shear rate in the range of from 9 ± 0.5 to 90 ± 5 s⁻¹ and at $23 \pm 2^\circ\text{C}$.

2. An aqueous coating composition according to claim 1 wherein said non-crosslinkable oligomer(s) has a solution viscosity ≤ 150 Pa.s, as determined from a 80% by weight solids solution of the non-crosslinkable oligomer(s) in at least one of the solvents selected from the group consisting of N-methylpyrrolidone, n-butylglycol and mixtures thereof, using a shear rate of 90 ± 5 s⁻¹ and at $50 \pm 2^\circ\text{C}$.

3. An aqueous coating composition according to claim 1 wherein said non-crosslinkable oligomer(s) has a solution viscosity ≤ 250 Pa.s, as determined from a 70% by weight solids solution of the non-crosslinkable oligomer(s) in a solvent mixture consisting of:

i) at least one of the solvents selected from the group consisting of N-methylpyrrolidone, n-butylglycol and mixtures thereof;

ii) water and

iii) N,N-dimethylethanolamine;

where i), ii) and iii) are in weight ratios of 20/7/3 respectively, using a shear rate of 90 ± 5 s⁻¹ and at $23 \pm 2^\circ\text{C}$.

4. An aqueous composition according to any one of the preceding claims wherein said non-crosslinkable oligomer(s) is selected from the group comprising polyurethane oligomer(s), vinyl oligomer(s), polyamide oligomer(s), polyether oligomer(s), polysiloxane oligomer(s), polyester oligomer(s), hyperbranched oligomer(s) and/or mixtures thereof.

5. An aqueous composition according to any one of the preceding claims wherein said composition has an equilibrium viscosity $\leq 5,000$ Pa.s when measured using any shear rate in the range of from 0.09 ± 0.005 to $90 \pm 5 \text{ s}^{-1}$, and an equilibrium viscosity of $\leq 3,000$ Pa.s when measured using any shear rate in the range of from 0.9 ± 0.05 to $90 \pm 5 \text{ s}^{-1}$, and an equilibrium viscosity of $\leq 1,500$ Pa.s when measured using any shear rate in the range of from 9 ± 0.5 to $90 \pm 5 \text{ s}^{-1}$, at any solids content when drying in the range of from 20 to 55% by weight of the composition and at $23 \pm 2^\circ\text{C}$.

6. An aqueous composition according to any one of the preceding claims wherein the non-crosslinkable oligomer(s) has a measured weight average molecular weight in the range of from 1,000 to 80,000 Daltons.

7. An aqueous composition according to any one of the preceding claims wherein the non-crosslinkable oligomer(s) has a $\text{PDI} \leq 15$.

8. An aqueous composition according to any one of the preceding claims wherein the non-crosslinkable oligomer(s) has a measured T_g in the range of from -120 to 250°C .

9. An aqueous composition according to any one of the preceding claims wherein the dispersed polymer(s) has a measured weight average molecular weight $\geq 90,000$ Daltons.

10. An aqueous composition according to any one of the preceding claims wherein the dispersed polymer(s) has a measured weight average molecular weight $< 90,000$ Daltons with the proviso that the dispersed polymer(s) has a solution viscosity > 150 Pa.s, as determined from a 80% by weight solids solution of the dispersed polymer(s) in at least one of the solvents selected from the group consisting of N-methylpyrrolidone, n-butylglycol and mixtures thereof, using a shear rate of $90 \pm 5 \text{ s}^{-1}$ and at $50 \pm 2^\circ\text{C}$.

11. An aqueous composition according to any one of the preceding claims wherein the dispersed polymer(s) has particle size in the range of from 25 to 1000nm.

12. An aqueous composition according to any one of the preceding claims wherein the dispersed polymer(s) has an acid value below 150mgKOH/g.

13. An aqueous composition according to any one of the preceding claims wherein the dispersed polymer(s) has a measured T_g in the range of from -50 to 300°C .

14. An aqueous composition according to any one of the preceding claims wherein the dispersed polymer(s) is a vinyl polymer.

15. An aqueous coating composition according to any one of the preceding claims additionally comprising a pigment.

5 16. A coating obtainable from an aqueous composition according to any one of the preceding claims.